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Related Entries, PubMed, Protein, Nucleotide, LinkOut

NEUROBLASTOMA CANDIDATE REGION, SUPPRESSION OF TUMORIGENICITY 1; NBL1

Alternative titles; symbols

DIFFERENTIAL SCREENING-SELECTED GENE ABERRANT IN NEUROBLASTOMA; DAN
D1S1733E
N03

Gene map locus 1p36.13-p36.11

TEXT

The N03 gene, later known as DAN (for 'differential screening-selected gene aberrant in neuroblastoma), was originally cloned from a normal rat fibroblast cDNA library by a differential screening method (Ozaki and Sakiyama, 1993). The DAN gene encodes a transcription factor homologous to a mouse tumor suppressor gene (Enomoto et al., 1994). The expression of the DAN gene was found to be significantly reduced in a variety of transformed cells. Furthermore, Ozaki and Sakiyama (1994) found that the DAN gene possesses a tumor suppressive activity when it is overexpressed in v-src transformed cells. To assess the involvement of the DAN gene in human neoplasms, Enomoto et al. (1994) isolated the human DAN counterpart from a normal lung cDNA library by using rat DAN cDNA as a probe. By fluorescence in situ hybridization, they determined that DAN maps to 1p36.13-p36.11, a region involved in the genesis and/or progression of human neuroblastoma (256700). Southern blot analysis of tumor DNA from 26 patients with neuroblastoma detected 3 patients showing genomic rearrangement or deletion within or closely linked to the DAN gene locus.

Enomoto et al. (1994) proposed that the DAN gene is the tumor suppressor gene of human neuroblastoma. White et al. (1995) were, however, able to exclude DAN as a candidate gene through loss of heterozygosity (LOH) studies. The DAN gene was present in 2 copies in 3 neuroblastoma cell lines containing 1p deletions. By genetic mapping, the DAN gene is known to lie in 1p36, proximal to TNFR2 (191191) and distal to ID3 (600277), two other loci excluded by White et al. (1995) as candidate genes for neuroblastoma.

Matsuda et al. (1996) mapped the homologous gene to mouse chromosome 4 (band D3), and to rat 5q36.13. This is another example of homology between mouse chromosome 4 and human 1p.

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